



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/876,396      | 06/07/2001  | Syuuichi Kariyazaki  | 14701               | 7345             |

23389 7590 10/18/2005

SCULLY SCOTT MURPHY & PRESSER, PC  
400 GARDEN CITY PLAZA  
SUITE 300  
GARDEN CITY, NY 11530

|          |
|----------|
| EXAMINER |
|----------|

OWENS, DOUGLAS W

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2811

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/876,396

Applicant(s)

KARIYAZAKI, SYUUICHI

Examiner

Douglas W. Owens

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 October 2003.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-11 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claims 4, 5, 8 and 11 are objected to because of the following informalities:

In line 2 of claim 4, "cell" should be replaced with --cells--, and "includes" should be replaced with --include--.

In line 2 of claim 5, "cell" should be replaced with --cells-- and "includes" should be replaced with --include--.

In line 4 of claim 8, "the" should be replaced with --an--.

In lines 3 and 5 of claim 11, --group of-- should be inserted between "first" and "I/O", and "second" and "I/O" respectively.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1 – 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claim 1 recites the limitation "the semiconductor chip" in lines 6 and 7. There is insufficient antecedent basis for this limitation in the claim.
5. Claim 2 requires that the semiconductor member be a semiconductor chip. The scope of the claim is vague, since it is not known if this is in addition to the

Art Unit: 2811

semiconductor chip mentioned in claim 1 or if the semiconductor member is a second semiconductor chip.

6. Claim 3 requires that the mounting member is a package for mounting a semiconductor chip. The scope the claim is vague since it is not known if the semiconductor chip is the chip mentioned in claim 1 or for mounting a second semiconductor chip.

7. Claim 1 requires that the electrode terminals be electrically ***and mechanically*** (emphasis added) connected to the interconnect pads on the semiconductor member. Claim 3 requires that the electrode terminals be disposed on a bottom surface of the packaging substrate. The scope of the claim is vague since it is not understood how the electrode terminals can be mechanically connected to the semiconductor member, which is mounted on the mounting member, when the electrode terminals are on the bottom surface of the substrate. It is further not known if the electrode terminals are on the mounting member, as required in claim 1, or the packaging substrate, as required in claim 3.

8. The scope of claim 6 is vague since it is not possible to determine if there is an interconnect line or multiple interconnect lines. It is also unknown if the interconnect line/lines is/are connected to one or multiple interconnect pads. Claim 7 has the same problem

9. Claim 7 recites the limitation "the substrate" in line 2. There is insufficient antecedent basis for this limitation in the claim. The claim further requires that the

Art Unit: 2811

substrate includes the interconnect pads. Are the same interconnect pads that are on the semiconductor member (claim 1) also on the substrate?

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1, 2 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,225,694 to Terui.

Regarding claim 1, Terui teaches a semiconductor device (Figs. 1 and 2A, for example) comprising:

a semiconductor member (12) having thereon a plurality of interconnect pads (13); and

a mounting member (1) having a plurality of electrode terminals (10) electrically and mechanically connected to the respective interconnect pads for mounting the semiconductor member on the mounting member;

the electrode terminals forming a plurality of I/O cells each having part of the electrode terminals, the I/O cells forming a first group of the I/O cells and a second group of I/O cells disposed on an inner position of the mounting member with respect to the first group.

Regarding claim 2, Terui teaches a semiconductor device, wherein the semiconductor member is a semiconductor chip, the electrode terminals are internal electrodes disposed on a bottom surface of the semiconductor chip, and the mounting member is a package substrate used for packaging thereon the semiconductor chip.

Regarding claim 6, Terui teaches a semiconductor device, wherein interconnect lines (3) are electrically connected to the interconnect pad and formed in a single interconnect layer.

### ***Response to Arguments***

12. Applicant's arguments with respect to claims 1 – 11 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas W. Owens whose telephone number is 571-272-1662. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven H. Loke can be reached on 571-272-1657. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Art Unit: 2811

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, reading "Douglas W. Owens". The signature is written in a cursive, flowing style.

Douglas W Owens  
Examiner  
Art Unit 2811

DWO